

# THE WESTERN AUSTRALIAN NATURALIST

Vol. 3

JULY 20, 1951

No. 1

## OBSERVATIONS ON THE FAT-TAILED DUNNART IN CAPTIVITY

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### INTRODUCTION

The Fat-tailed Dunnart or Pouched Mouse (*Sminthopsis crassicaudata*) is a marsupial which should be better known to Western Australians than it is, for the original specimen was taken at Williams in 1844 and described and named by John Gould, the famous ornithologist. For over a century it has remained to most of those who come in contact with it as just a "field mouse." Few have regarded it as other than a slightly different form of an unpopular rodent pest. Its food habits suggest that it is a valuable ally of man, as a destroyer of insect pests and possibly of mice. It appears to be a marsupial that may have adjusted itself to the changed environment following on settlement, or at least found it temporarily favourable, and its usefulness should be publicised.

### OCCURRENCE

The Fat-tailed Dunnart is not uncommon in the central Midlands and the northern Wheatbelt. It is most frequently seen during stone and root picking operations when its shelters are disturbed. Most local residents who know and can recognise the Dunnart consider that it has increased in numbers during recent years. This could be due perhaps, to a temporary expansion influenced by favourable seasonal conditions, for Prof. F. Wood Jones (*The Mammals of South Australia*, 1923, p. 115) says: "It is nowhere abundant, and its numbers in any given locality obviously depend upon season." On the other hand the clearing of land for agriculture, and its consequential effects, may have favoured the Dunnart, for both grasshoppers and ground caterpillars are relished as items of fare.

I found the Dunnart plentiful in certain areas of the Coorow and Waddi Forest districts in 1947. In April and May of that year five specimens were captured by the school children during root and stone picking operations. In 1950 other specimens were found at Morawa.

## METHODS OF STUDY

The Coorow specimens were placed in a specially constructed out-doors cage for observation purposes. This was made of wire-gauze and antproofed by standing the legs in cans of water. They appeared to be thriving but after some weeks tragedy overtook the colony. They fought viciously, one being killed by its fellows and partly eaten, and two died as the result of the injuries sustained. The remaining two were liberated.

The second attempt at studying these marsupials was made at Morawa when a single male was placed in an observation box on June 10, 1950. At the time of writing, over six months later, it is apparently in a good state of health. The cage measures 22 in. by 16 in. and is 15 in. high. It is fitted with a sand tray floor. Two sides are of wire gauze and two are of glass. The top is open but a wide ledge prevents the animal from escaping. A nest box 8 in. by 4 in. by 4 in., with a moveable lid and a hole 1½ in. in diameter at one end, provides shelter from light and is a convenience for nesting.

Observations were carried out at night with the aid of an electric torch. All of the photographs were taken with a flashlight apparatus.

## BEHAVIOUR

Captured Dunnarts were at first extremely timid. They crouched with ears flattened to the head and quickly sought concealment inside the small boxes provided for the purpose.

The animals were never observed outside these nest-boxes during daylight hours—unless disturbed by examination. Illumination from the electric flash, such as during photography, did not, however, disturb the animals unduly, provided the beam was held steady, but they were extremely sensitive to the slightest sound or movement. The Dunnart at present in captivity shows the same characteristics. It is housed in a room equipped with electric light. When this is switched on at night it will continue its activities without interruption, provided there is not too much noise or movement, but I have never seen it on the move during the day.

Wood Jones' description of it (*L.c.*, p. 111), as "a savage and alert-looking little animal" is apt. The extraordinarily large eyes and conspicuous ears help to emphasise its nocturnal habits. Its whole demeanour, including the hesitant forward movement with one foreleg raised, and the upright "prop," suggests its alertness. It can move with incredible speed when it wishes to.

Locomotion at top speed when the animal is in the open is accomplished by means of rapid kangaroo-like bounds; over short distances it has a peculiar quadrupedal amble (Fig. 4) and the tail is held in a stiff upward curve above ground. The Dunnart



Fig. 2.—The tail being used with the legs as a "tripod" to raise height and increase the range of vision.



Fig. 1.—Fat-tailed Dunnart; the ears are flattened when the animal is alarmed.

can jump on to obstacles six inches high within its cage with apparent ease and it is a remarkably agile climber. Mr. L. Glauert, of the W.A. Museum, who has also kept Dunnarts in captivity, has noted this ability but, strangely, it has not been commented on by other writers. Ellis Troughton (*Furred Animals of Australia*, 1941) says: "They are terrestrial and live in holes amongst rocks, under logs, or in the ground, and in the hollows of logs and fallen limbs, or in heaps of debris." All of the animals observed by me in the wild state were found in situations similar to these; nevertheless their ability to climb freely suggests that this capacity may be employed in food-gathering.

In positions of rest, alarm or curiosity, the tail is a highly important unit. It acts as a "prop" and with the two hind legs gives a "tripod" support which must considerably increase the animal's range of vision when it stands at full height (Fig. 2).

### NESTS

All of the Dunnarts constructed snug nests for themselves inside the shelter compartments in the cage within a few days of capture. Grass, leaves and pieces of wool thrown into the cages were used. Although I watched on several occasions with the purpose of finding out, I could never discover how this material was transported. It would have been of considerable interest to observe whether the highly flexible and sensitive tail was used.

When sufficient material had been provided the nests assumed the form of a loose ball with no defined exit or entrance. The animals curled up snugly inside the debris. Despite the provision of two nest boxes during the brief period when all five individuals were kept at Coorow, they showed a preference for "bundling," the five clinging together in a ball. This feature has been noted in the wild state also and Troughton (*l.c.*) tells of a native at Namoi, New South Wales, who said he found as many as five in a single nest.

A peculiarity noted in the animal at present under observation at Morawa, and now in its seventh month of captivity, was the loss of the nest-building urge. During the first few months whenever a nest was removed it was immediately reconstructed. After September, however, grasses have not been taken into the box. This might be due to the effects of confinement and artificial conditions, but it suggests a normal behaviour pattern referred to by Charles Barrett (*An Australian Animal Book*, 1947, p. 33) who says it "uses its nest in winter-time, usually deserting it in summer for a shelter among stones."

### FEEDING

Captive animals watched by me readily accepted grasshoppers, caterpillars and small lizards. When these were not available they took finely cut raw meat and sheep's heart, small quantities of



Fig. 3.—Typical alert stance with one forepaw raised.



Fig. 4.—The shuffling amble with tail held well above ground.

Photos S. R. White.

cheese and hard-boiled egg yolk. Other foods, including cooked meats, sweet foods and cakes, were tried without success.

On one occasion when caterpillars were plentiful a single hairy specimen was introduced with a number of others. The same hairy caterpillar was a sole survivor each morning for a week until its removal despite the fact that as many as forty of the smoother kinds were consumed in a single night.

The method of dealing with a caterpillar was both simple and swift. The larva would be raised lightly in the forepaws and manipulated into position. The head was bitten off quickly and the remainder consumed at leisure. With all forms of live prey the head was first attacked. The legs, wings and harder portions of grasshoppers were discarded.

H. H. Finlayson (*The Red Centre*, 1935), illustrates a closely related desert form, the Nilee. The following caption is given: "A little carnivorous marsupial, *Sminthopsis crassicaudata centralis*, that follows and preys upon the mice hordes during rodent plagues." This indicates the ability of the fierce little predator to cope with comparatively large forms of prey.

#### HYGIENE

The ritual of personal hygiene is always a fascinating procedure to watch. It follows each meal. Forepaws are employed in a characteristic feline-like "face-washing." The fur on the head, face, fore-paws and underparts are cleansed with great care. Hind legs are used for body-scratching and frequently the process is completed with an elaborate examination of the tail.

Within the nest box one particular corner was always used for depositing the faeces. The animal also showed a tendency to convey its prey or food to a particular site before commencing to eat.

#### ADDENDUM

Since the preceding notes were written, the Morawa Dunnart has continued to thrive and has now been in captivity for over 12 months. In January 1951, its fur appeared to be in very poor condition, and a large patch on the back, extending to the base of the tail, had moulted. By the end of April the fur had completely re-grown and the tail had fattened considerably.

Several additional animals were obtained in May 1951, from Morawa, Pintharuka, Merkanooka and Mullewa. The tails of these animals at the time when they were taken in no case exceeded in size that of the captive animal although they developed rapidly. Only four Dunnarts have been retained, including the original male. They have been paired off in separate observation cases and both pairs have constructed grass nests.